

REMARKS

Claim 1 has been amended to require that the ether (poly) isocyanate produced by the claimed process have a hydrolyzable chlorine content of less than 48 ppm. Support for this amendment is found in the Examples which teach that the products obtained in those Examples had hydrolyzable contents of 48 ppm or less.

Claim 3 has been amended to recite that the polyisocyanate has a hydrolyzable chlorine content of no more than 43 ppm. Support for this amendment is found in Example 1.

Claims 5 and 6 have been cancelled.

The present invention relates to a process for the production of ether (poly)isocyanates in which an ether (poly)amine is reacted with at least a stoichiometric amount of phosgene in the gas phase and to select isocyanates made by this process.

Claim 2 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Two specific bases for this rejection were given. Applicants respectfully traverse this rejection with respect to each of these bases.

The first basis for this rejection was that the values of "n" will not generate a polyamine under various permutations.

Applicants submit that the claimed invention is not limited to polyamines. Applicants' claims are directed to ether (poly)amines. The use of the parentheses around the prefix "poly" indicates to those skilled in the art that there **may** be more than one amine group but does not require the presence of more than one amine group. That monoamines are within the scope of the present invention is evident, for example, from the list of amines suitable for use in the practice of the present invention which appears at page 6, line 13 through page 7, line 6, particularly page 6, lines 15-17 and page 7, lines 5-6 and from Example 5 in which 3-methoxypropyl isocyanate was prepared.

Applicants' Formula (I) and the values of "n" do therefore particularly point out and distinctly claim the subject matter being claimed.

Withdrawal of this rejection on this basis is therefore requested.

The second basis for this rejection is that the direct bond between "X" and "O" is only viable when limited to R¹.

Applicants submit that it is well established that compliance with 35 U.S.C. §112 must be adjudged from the perspective that claims are addressed to a person of average skill in the particular art, who would not choose a combination of circumstances that would render the claimed composition or method inoperative.

Ex parte Cole, 223 USPQ 94 (Bd. App. 1983)

Applicants submit that one skilled in the art would readily appreciate the meaning of their claim language with respect to the presence of a direct bond between "X" and "O", as is apparent from the statement made in the Office Action that "the direct bond between "X" and "O" **is only viable** when limited to R¹." (emphasis added)

Applicants' claim language does therefore particularly and distinctly claim their invention in a manner which complies with the requirements of 35 U.S.C. § 112.

Withdrawal of this rejection on this basis is therefore respectfully requested.

Claim 2 further stands rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specific basis for this rejection is that no support is found for R² and R³ being direct bonds. Applicants respectfully traverse this rejection.

As has been noted in the Office Action, "the direct bond between 'X' and 'O' **is only viable when limited to R¹**." (emphasis added)

One skilled in the art would therefore readily appreciate that Applicants' claims could not logically include an embodiment in which R² is a direct bond "of X to the ether oxygen atom bonded to R²" nor an embodiment in which R³ is a direct bond "of X to the ether oxygen atom bonded to R²".

The absence of support for an "embodiment" of the invention which is obviously not within the scope of Applicants' claims does not provide a proper basis for a rejection under 35 U.S.C. § 112, paragraph 1.

Withdrawal of this rejection is therefore requested.

Claims 1-6 further stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specific bases for this rejection are the hydrolyzable chlorine content limitations.

Claims 5 and 6 have been cancelled.

Applicants submit that their Claims 1-4 as amended herein contain subject matter which is clearly described in the specification.

Withdrawal of this rejection is therefore requested.

Claims 1-6 were also rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The specific basis for this rejection is the failure to specify the type of percent value and the basis for the percent value of the hydrolyzable chlorine content.

Claims 5 and 6 have been cancelled.

Claims 1-4 have been amended to recite hydrolyzable chlorine content in terms of parts per million rather than as percentages. Therefore, it is believed that the basis for this rejection has been removed.

Withdrawal of this rejection is therefore requested.

Claims 1-6 further stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lehmann et al (U.S. Patent 3,267,122) in view of Joulak et al (U.S. Patent 5,391,683) or Biskup et al (U.S. Patent 5,449,818) or Bischof et al (U.S. Patent 5,516,935). Claims 5 and 6 have been cancelled. Applicants respectfully traverse this rejection with respect to Claims 1-4.

Lehmann et al does not teach a gas phase phosgenation process for the production of ether isocyanates.

Neither Joulak et al nor Bischof et al teaches or suggests that the disclosed gas phase phosgenation processes could be used to produce ether isocyanates.

Biskup et al teaches that aromatic amines in which an ether group is present could be used in the disclosed gas phase process for the production of aromatic diisocyanates **but does not teach or suggest** that the isocyanate produced by that

process would retain such ether group. Nor would one skilled in the art expect it to be retained under the conditions present in a gas phase phosgenation process.

(See enclosed Declaration of Dr. Stutz.)

It has been argued by the Patent Office that it would have been obvious to one of ordinary skill in the art to use the ether amines disclosed by Lehmann et al in the gas phase phosgenation processes of the secondary references.

Applicants continue to maintain that those skilled in the art would not have expected ether amines to produce ether isocyanates in good yield, if at all, at the time Applicants made their invention because cleavage of the ether oxygen would be expected under such reaction conditions. Support for Applicants' position is found in the attached Declaration of Dr. Stutz, an expert in the area of gas phase phosgenation processes.

Absent a reasonable expectation of success, the suggested combination of the teachings of Lehmann et al, Joulak et al, Biskup et al and Bischof et al does not establish a proper *prima facie* case of obviousness.

Withdrawal of this rejection is therefore requested.

In view of the above amendments and remarks, reconsideration and allowance of Claims 1-4 are respectfully requested.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES

IN THE CLAIMS:

Claims 5 and 6 have been cancelled.

Claims 1 and 3 have been amended to read as follows:

1. (Twice Amended) A process for the production of an ether (poly)isocyanate having a hydrolyzable chlorine content [of] less than or equal to 48 ppm [0.1%] from an ether (poly)amine comprising reacting

a) an ether (poly)amine

with at least a stoichiometric amount (based on the number of primary amine groups present in a)) of

b) phosgene or a compound which generates phosgene under the reaction conditions

in the vapor phase at a temperature of from about 50 to about 800°C under pressure.

3. (Amended) An ether isocyanate selected from the group consisting of 2-(2-isocyanato-propoxy)-1-propyl isocyanate, 1,1'-oxydi-2-propyl isocyanate, 2,2'-oxydi-1-propyl isocyanate and mixtures thereof having a hydrolyzable chlorine content of no more than 43 ppm [less than 0.1%].